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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/763,061	01/22/2004	Randall Lee	F033-3	3725
25784	7590	04/22/2005	EXAMINER	
MICHAEL O. SCHEINBERG P.O. BOX 164140 AUSTIN, TX 78716-4140			CYGAN, MICHAEL T	
			ART UNIT	PAPER NUMBER
			2855	

DATE MAILED: 04/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/763,061

Applicant(s)

LEE ET AL.

Examiner

Michael Cygan

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 11-41 is/are rejected.
- 7) ☒ Claim(s) 6-10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 24 May 2004.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

1. Claims 27-30 are rejected under 35 U.S.C. 102(a) as being anticipated by Baldeschwieler (US 5,824,470). Baldeschweiler discloses a probe tip used in a scanning probe microscope and a method for forming the probe tip comprising providing a shaped tip with a planar end (a cone with sloping sidewalls) by cutting a tapering probe tip support (e.g., ion milling; column 4, lines 30-38) on which an organic catalyzing layer is formed on the outer planar surface, on which a single carbon (single- or multi-wall-) nanotube is grown in which the nanotubule has a diameter substantially the same as the planar surface; the tip is brought into contact with a surface through the actuator of a scanning probe microscope; see Figures 1a, 1b, 6 and columns 15-20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 11, 13-17, 20-26, 34-37, and 41 are rejected under 35 U.S.C.

103(a) as being unpatentable over Cheung (PNAS April 2000) in view of Ren (APL August 1999). Cheung discloses a probe tip and method for forming the tip comprising providing a shaped tip with a planar end (a cone with sloping sidewalls) on which an iron catalyzing layer (having a diameter which may be above 5 nm; see Table 1 and first paragraph of 3811) is formed in holes on the outer surface, on which a single carbon (single- or multi-wall-) nanotube is grown; the tip is brought into contact with a surface through the tapping mode actuator of an AFM. The probe distal surface appears slanted (non-parallel to the base of the cone); see Figure 2a. See pages 3809-10 and Figure 1. Cheung teaches the claimed invention except for the use of a particle-beam-grown nickel catalyzing layer having a thickness of 15 nm and a lateral extent of 100 nm formed on top of (not in holes of) the probe tip, or multiple nanotube tips on multiple planar catalyst supports. Ren teaches the use of a particle-beam grown nickel catalyzing layer comprising multiple areas each growing nanotube tips having a (non-uniform, see Figure 2a) thickness of 15 nm and a lateral extent of 100 nm formed on top of (not in holes of) a probe tip used in scanning probe microscopy; see pages 1086 and Figure 2. It would have been obvious to one having ordinary skill in

the art at the time the invention was made to use a nickel catalyzing layer comprising multiple areas each growing nanotube tips having a thickness of 15 nm formed on top of (not in holes of) the probe tip as taught by Ren in the invention taught by Cheung to form the catalyzing layer, since Ren teaches that the nickel layer is an alternative to the use of embedded iron particles (column 1 of page 1086) and provides "fabrication without difficulty" of freestanding carbon nanotubes in scanning probe microscopy (see abstract).

Double Patenting

3. Claims 23-31, 34-38, and 41 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-28 of U.S. Patent No. 6,457,350 in view of Ren (APL August 1999). Although the conflicting claims are not identical, they are not patentably distinct from each other because each combination of limitations claimed in the instant application is found in the claims of the '350 patent.
4. Claims 1-5, 11-22, 32, 33, 39, and 40 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-28 of U.S. Patent No. 6,457,350 in view of Ren (APL August 1999). The '350 patent claims the claimed invention

except for the use of a particle-beam-grown nickel catalyzing layer having a thickness of 15 nm and a lateral extent of 100 nm formed on top of (not in holes of) the probe tip, or multiple nanotube tips on multiple planar catalyst supports. Ren teaches the use of a particle-beam grown nickel catalyzing layer comprising multiple areas each growing nanotube tips having a (non-uniform, see Figure 2a) thickness of 15 nm and a lateral extent of 100 nm formed on top of (not in holes of) a probe tip used in scanning probe microscopy; see pages 1086 and Figure 2. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a nickel catalyzing layer comprising multiple areas each growing nanotube tips having a thickness of 15 nm formed on top of (not in holes of) the probe tip as taught by Ren in the invention claimed in '350 to form the catalyzing layer/nanotube structure, since Ren teaches that the nickel layer provides "fabrication without difficulty" of freestanding carbon nanotubes in scanning probe microscopy (see abstract).

Allowable Subject Matter

Claims 6-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Lieber (US 6,743,408 B2), Kaito (US 6,864,481 B2), and Schlaf (US 6,871,528 B2).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is (571) 272-2175. The examiner can normally be reached on 8:30-6 M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1751.


Michael Cygan
April 20, 2009
MICHAEL CYGAN, PH.D.
PRIMARY EXAMINER